



United States
Department of
Agriculture
Forest Service
May 2017



Wildlife Resource Report

**South Fork Tributary Habitat Enhancement Project
Salmon/Scott River Ranger District, Klamath National Forest,
Siskiyou County, California**

For Information Contact: Jessica R Stauffer
c/o Salmon River Restoration Council
3615 Union Street, Eureka, CA 95503
(707) 496-0119

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Table of Contents

Introduction	2
Methodology	4
Analysis Indicators	5
Spatial and Temporal Context	5
Affected Environment	6
Potentially Present in the Project Area	6
Environmental Consequences	13
Alternative 1 – No Action Alternative	13
Direct and Indirect Effects	13
Cumulative Effects	13
Alternative 2 – Proposed Action	13
Direct and Indirect Effects for all Sensitive Species	13
Forest Sensitive Species Environmental Consequences	14
Direct and Indirect Effects	14
Summary of Effects	16
Cumulative Effects	16
Compliance with law, regulation, policy, and the Forest Plan	17
Management Indicator Species Environmental Consequences	18
Survey and Manage Environmental Consequences	Error! Bookmark not defined.
Alternative 1 and Alternative 2 Direct and Indirect Effects	21
Cumulative Effects	Error! Bookmark not defined.
Compliance with law, regulation, policy, and the Forest Plan	Error! Bookmark not defined.
Literature Cited	21

List of Tables

18

Error! Bookmark not defined.

WILDLIFE RESOURCE REPORT

Introduction

The purpose of this wildlife report is to determine the effects of the South Fork Tributary Habitat Enhancement Project on wildlife species listed as Forest Sensitive Species (FSS) according to the Pacific Southwest Region - USDA Forest Service (USFS), Survey and Manage Species (S&M), Management Indicator Species (MIS), and Migratory Birds. This document functions as a combined and brief report for all species listed below. Threatened, Endangered, or Proposed species identified by the U.S. Fish & Wildlife Service (USFWS) are analyzed in a separate document (Biological Assessment). The expected minimum effects to these species and their habitat by the proposed action will be reflected in the following analysis by focusing on the species where the range overlaps and habitat exists within the project area.

From the aforementioned species lists, the following species, based on the species range and existing habitat, could occur within the project area and are analyzed in this document:

Threatened, Endangered, or Proposed species identified by the U.S. Fish & Wildlife Service (USFWS) are analyzed in a separate document (Biological Assessment, available on the project webpage). The expected minimum effects to these species and their habitat by the proposed action will be reflected in the following analysis by focusing on the species where the range overlaps and habitat exists within the project area. The following list of Threatened, Endangered, and Proposed species was considered in the Biological Assessment:

Threatened, Endangered, and Proposed Species (TEP)

- Oregon spotted frog (*Rana pretiosa*)
- northern spotted owl (*Strix occidentalis caurina*)
- yellow-billed cuckoo (*Coccyzus americanus*)
- North American wolverine (*Gulo gulo luscus*)
- gray wolf (*Canis lupus*)

The proposed project is outside of the range of Oregon spotted frog and yellow-billed cuckoo. This was documented in the Biological Assessment (BA) associated with the proposed project within which potential impacts to northern spotted owl, North American wolverine and gray wolf were analyzed. Therefore, these species are not considered further herein even though northern spotted owl and North American wolverine also occur on the following Forest Sensitive Species List.

From the aforementioned species lists, the following species, based on the species range and habitat, could occur within the project area and are analyzed in this document:

Forest Sensitive Species (Sensitive)

- blue-gray tailed dropper (*Prophyaon coeruleum*)
- Tehama chaparral snail (*Trilobopsis tehamana*)
- western bumble bee (*Bombus occidentalis*)
- Cascades frog (*Rana cascade*)
- foothill yellow-legged frog (*Rana boylii*)
- western pond turtle (*Emys marmorata*)
- northern goshawk (*Accipiter gentilis*)
- bald eagle (*Haliaeetus leucocephalus leucocephalus*)

northern spotted owl (*Strix occidentalis caurina*)
willow flycatcher (*Empidonax trailii*)
North American wolverine (*Gulo gulo luscus*)
American marten (*Martes americana*)
Pacific fisher (*Martes pennanti pacifica*)
fringed myotis (*Myotis thysanodes*)
Townsend's big-eared bat (*Corynorhinus townsendii*)
pallid bat (*Antrozous pallidus*)

The Scott Bar salamander (*Plethodon asupak*), Siskiyou Mountains salamander (*Plethodon stormi*), southern torrent salamander (*Rhyacotriton variegatus*), northern red-legged frog (*Rana aurora*), Swainson's hawk (*Buteo swainsoni*), greater sandhill crane (*Antigone canadensis tabida*), western yellow-billed cuckoo (*Coccyzus americanus*), and Sierra Nevada red fox (*Vulpes vulpes necator*) are on the USFS Region 5 Sensitive Species list. However, the proposed project occurs outside of their known ranges and they are unlikely to occur in the project area (Appendix A). Therefore, this project will have no effect on any of the aforementioned species and they will not be further considered in this analysis except for northern-red-legged frog which is addressed as a Management Indicator Species (Table 1).

Additionally, Cascades frog, bald eagle, and American marten are also eliminated from detailed study as described in Appendix A.

Management Indicator Species (MIS)

Hardwood Associated Species

acorn woodpecker (*Melanerpes formicivorus*)
western gray squirrel (*Sciurus griseus*)

River/Stream Associated Species

tailed frog (*Ascaphus truei*)
Cascades frog (*Rana cascade*)
American dipper (*Cynclus platensis*)
northern water shrew (*Sorex palustris*)
long-tailed vole (*Microtus longicaudus*)

Marsh/Lake/Pond Associated Species

northern red-legged frog (*Rana aurora*)
western pond turtle (*Clemmys marmorata*)

Snag Associated Species

Vaux's swift (*Chaetura vauxi*)
red-breasted sapsucker (*Sphyrapicus ruber*)
downy woodpecker (*Picoides pubescens*)
hairy woodpecker (*Picoides villosus*)
white-headed woodpecker (*Picoides villosus*)
black-backed woodpecker (*Picoides arcticus*)
pileated woodpecker (*Dryocopus pileatus*)

Methodology

All the species listed as Forest Sensitive, Survey and Manage, Management Indicator Species, and Migratory Birds that may occur on the Forest were considered in this analysis. This list was reduced by identifying which species have ranges that overlap the project area. Those species were then further reduced by determining whether suitable habitat for each species exists within the project area. Therefore, only species from the aforementioned lists that may occur within the project area, based on existing habitat and species range, will be analyzed.

Section 7 of the Endangered Species Act of 1973, as amended, and Forest Service Policy (FSM 2670) direct federal agencies to ensure that any action authorized, funded, or permitted by such agencies is not likely to jeopardize the continued existence of 1) species listed, or proposed to be listed as Endangered or Threatened by the U.S. Fish and Wildlife Service, and 2) species listed as Sensitive by the Region 5 Regional Forester, or to cause a trend to federal listing for species listed as Sensitive (USDA 2005).

Sensitive - Pertains to those species for which population viability is a concern. They rely on specific habitat conditions that are limited in abundance, restricted in distribution, or are particularly sensitive to development. Sensitive species are not federally designated under the Endangered Species Act.

MIS – Pertains to species whose habitat requirements most reflect those of the species community in the habitat of concern, usually used to indicate habitat quality and to predict future conditions. They are usually selected because their welfare is presumed to be an indicator of the welfare of other species in the habitat. Conditions of these species can be used to assess the impacts of management actions on a particular area, and managing for these species usually requires significant allocations of land or resources.

S&M - Under the Pechman Exemptions (October 2006), the proposed action will not require surveys for the species listed as ‘Survey and Manage’ within the Northwest Forest Plan (Record of Decision 2001, USDA Forest Service and USDI Bureau of Land Management 2001).

Migratory Birds – Under the National Forest Management Act (NFMA), the Forest Service is directed to “provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives” (P.L. 94-588, Sec 6 (g) (3) (B)). The January 2000 USDA Forest Service (FS) Landbird Conservation Strategic Plan, followed by Executive Order 13186 in 2001, in addition to the Partners in Flight (PIF) specific habitat Conservation Plans for birds and the January 2004 PIF North American Landbird Conservation Plan all reference goals and objectives for integrating bird conservation into forest management and planning.

On December 2008, a Memorandum of Understanding (MOU) between the USDA Forest Service and the US Fish and Wildlife Service to Promote the Conservation of Migratory Birds was signed. The intent of the MOU is to strengthen migratory bird conservation through enhanced collaboration and cooperation between the Forest Service and the Fish and Wildlife Service as well as other federal, state, tribal and local governments. Within the National Forests, conservation of migratory birds focuses on providing a diversity of habitat conditions at multiple spatial scales and ensuring that bird conservation is addressed when planning for land management activities.

Migratory birds are considered by the analysis of migratory bird species within the analysis for Sensitive, MIS, and Threatened, Endangered, and Proposed species, and will not be evaluated further through a specific analysis for the 2008 MOU.

Analysis Indicators

Section 7 of the Endangered Species Act of 1973, as amended, and Forest Service Policy (FSM 2670) direct federal agencies to ensure that any action authorized, funded, or permitted by such agencies is not likely to jeopardize the continued existence of 1) species listed, or proposed to be listed as Endangered or Threatened by the U.S. Fish and Wildlife Service, and 2) species listed as Sensitive by the Region 5 Regional Forester, or to cause a trend to federal listing for species listed as Sensitive (USDA 2005). Analysis indicators also include species of concern identified as Survey and Manage species. The Bureau of Land Management and Forest Service adopted standards and guidelines for the management of habitat for late-successional and old-growth forest related species within the range of the northern spotted owl, commonly known as the Northwest Forest Plan (NWFP). The NWFP included measures for management of known sites, site-specific pre-habitat disturbing surveys, and/or landscape scale surveys for about 400 rare and/or isolated species. To be in compliance with the 2014 Survey and Manage direction (USDA 2014a), projects must have pre-disturbance surveys conducted if the activity is potentially considered to be habitat-disturbing, and known sites must be managed to protect persistence at the site.

Sensitive - For the Pacific fisher, American marten and northern goshawk, the effects to northern spotted owl (NSO) nesting/roosting and foraging habitat was used as a proxy for analyzing the effects to the preferred habitat of these species as they utilize habitats with similar forest structure, typically associated with more mature forest stands. For all other Sensitive species analyzed in this document, a habitat assessment was performed to estimate the potential impacts to preferred habitat of these species.

MIS - For the MIS species analyzed in this document, a habitat assessment was performed to estimate the number of habitat acres disturbed by the proposed action. Habitat was typed using the CalVeg GIS dataset, containing classified vegetation typing. Vegetation types were split into ten categories such as oak woodland and brush. From these ten habitat types, a single type, or combination of types, was then assigned to each species best represented by the habitat commonly used by the particular species. Treatments occurring in those assigned habitat types were analyzed for potential effects and reported as acres of habitat potentially affected by the proposed treatment.

Spatial and Temporal Context

The project area is the analysis area. This boundary is appropriate for assessing the project impacts as they might be experienced by existing sensitive species within the project area.

The short-term temporal bound is the time it takes to complete project implementation and for a layer of mulch and debris to recover bare ground, three to five years.

The long-term temporal bound for the project is 10 years because it is expected that any potential reductions to vegetation from project activities will recover within 10 years, if not more quickly. This timeframe assumes that reduced shade and canopy cover is primarily due to the disturbance to Himalayan blackberry (*Rubus armeniacus*), poison oak (*Toxicodendron diversilobum*), upland shrubs, and the removal of white alder (*Alnus rhombifolia*). It is expected that shrub species will recover and provide vegetative habitat within a few years of disturbance; no more than 10 years.

Affected Environment

A review of the proposed project was conducted to assess potential impacts to the species considered in this document. Field surveys were used to identify species preferred habitat within the project area. A GIS habitat analysis found that preferred habitat did occur for Sensitive, and Migratory Birds (see species accounts below). Potential effects were analyzed for these species because surveys could not be conducted during the appropriate window for observation. An evaluation of species-habitat associations, presence of suitable or potential habitat, and a review of the literature on the effects to the species of concern were used to determine potential effects.

Field surveys conducted during project planning performed by the Project Lead, Melissa Van Scoyoc, on 6/20/2016, 8/17/2016, and 8/18/2016 were used to identify areas of potential habitat for FSS, and Migratory Bird species. Field surveys for blue-gray tailed dropper, western pond turtle (individuals, nests, and overwintering burrows), salamander, foothill yellow-legged frogs (all life phases), and tailed frogs (all life phases) were performed on 5/9/2017 by Jessica Stauffer and Melissa Van Scoyoc. Habitat for all species was determined to be marginal and no species were observed.

MIS - Habitat was typed using the CalVeg GIS dataset, containing classified vegetation typing. Vegetation types were split into ten categories such as oak woodland and brush. From these ten habitat types, a single type, or combination of types, was then assigned to each species best represented by the habitat commonly used by the particular species. Treatments occurring in those assigned habitat types were analyzed for potential effects and reported as acres of habitat potentially affected by the proposed treatment.

CEQA analysis performed for California Department of Fish and Wildlife (CDFW) through the Fisheries Restoration Grant Program did not find any significant effects to USFWS or CDFW special status species. There are no known occurrences of FSS, MIS, S&M, or Migratory Birds in the project area.

Potentially Present in the Project Area

Blue-gray Tailed dropper - Blue-gray tailed dropper is a small, slender slug endemic to western North America, where it occurs from southwestern British Columbia south through the Puget Lowland and Cascade Range of Washington State into Oregon and northern California (Kelley et al. 1999). A disjunct population also occurs in northern Idaho. A similar form (possibly another species) also exists in the middle Klamath drainage in Siskiyou County, possibly extending the potential range in California (Frest and Johannes 2000).

This species inhabits low elevation (less than 820 feet above sea level) mature or maturing second growth (>60 years old) mixed conifer forests. In open or dry areas, it is usually located in sites with relatively higher shade and moisture levels than those of the general forest habitat. It is typically found in moist plant communities such as big-leaf maple and sword-fern. Blue-gray tailed dropper is typically associated with leaf and needle litter, wood chips from decomposing logs, mosses and is known to browse on mycorrhizal fungi species (Kelley et al. 1999).

Threats to this species include further loss of habitat due to timber harvest, agricultural expansion, grazing and urbanization (Frest and Johannes 2000).

Tehama Chaparral Snail – The Tehama chaparral snail is a terrestrial snail endemic to Tehama, Butte and Siskiyou Counties, California (Kelley et al. 1999). It is known from 146

occurrences in Shasta County, 140 of which are on Federal land (Burke et al. 1999, USFWS 2011).

It is generally associated with rocky talus. The species has also been found under leaf litter and woody debris on the ground within 328 feet of limestone outcrops, rockslides, draws or caves with a cover of shrubs or oak (Kelley et al. 1999). Forest litter and coarse woody debris are considered necessary to provide food and temporary cover from the semi-xeric conditions of the surrounding environment (Burke et al. 1999, USFWS 2011).

Threats to this species are habitat destruction and/or conversion, primarily from road construction and maintenance, limestone quarrying and mining, recreation and urbanization (USFWS 2011).

Western Bumble Bee – Historically, western bumble bee occurred from the Pacific coast to the Colorado Rocky Mountains. A severe population decline has occurred west of the Sierra-Cascade crest but populations are known from the Great Basin, the Rocky Mountains and Alaska. Several subspecies have also been suggested. Although rare throughout much of its range, the species can be locally common (Hatfield et al. 2015, Koch et al. 2012).

Like most other species of bumble bees, western bumble bee typically nests underground in abandoned rodent burrows or other cavities. Most reports of nests are from underground cavities such as old squirrel or other animal nests and in open west-southwest slopes bordered by trees, although a few nests have been reported from above-ground locations such as in logs among railroad ties (Hatfield et al. 2015, Hobbs 1968, MacFarlane et al. 1994, Plath 1922, Thorp et al. 1983). Availability of nest sites may depend on rodent abundance (Evans et al. 2008, Hatfield et al. 2015). Nest tunnels have been reported to be up to 10 feet long and may be lined with grass or bird feathers (Hatfield et al. 2015, MacFarlane et al. 1994).

Suitable habitat for this species occurs in open grassy areas, urban parks and gardens, chaparral and shrub areas and mountain meadows (Williams et al. 2014).

Bumble bees, including western bumble bee, are generalist foragers and have been reported visiting a wide variety of flowering plants. The species requires plants that bloom and provide adequate nectar and pollen throughout the colonies life cycle, which is generally from early February to late November but likely varies by elevation (Hatfield et al. 2015).

Threats to this species include disease, habitat loss and alteration (primarily from agriculture), urban development, conifer encroachment (primarily from fire suppression), grazing, timber harvest, insecticides which kill individuals directly, herbicides which remove floral resources, and climate change (Evans et al. 2008).

Bumble bees, including western bumble bee, are generalist foragers and have been reported visiting a wide variety of flowering plants. The species requires plants that bloom and provide adequate nectar and pollen throughout the colonies life cycle, which is generally from early February to late November but likely varies by elevation (Hatfield et al. 2015).

Foothill Yellow-legged Frog - Foothill yellow-legged frog occurs primarily in the Coast Ranges from Oregon south to the Transverse Mountains in Los Angeles County, California, in most of northern California west of the Cascade crest, and along the western slopes of the Sierra Nevada, south to Kern County in a variety of habitats including valley hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow types (CNDDB 2012, Zeiner et al. 1990).

The species prefers partly shaded, shallow streams and riffles with a rocky substrate but inhabits a variety of aquatic habitats (depending on their life stage and the time of year) including: pools, riffles, and runs in rivers and smaller tributary streams. Adults generally occur along the mainstem of rivers during spring when they are breeding in pools and then return to basking and foraging sites at stream tributaries. Juvenile frogs tend to migrate to upstream tributaries in late summer and early fall.

Foraging habitat includes areas that support both terrestrial and aquatic invertebrates. Foothill yellow-legged frog appears to prefer adult insect prey but is also known to predate snails and consume pieces of molted skin (Fitch 1936). Tadpoles likely graze on algae and diatoms along rocky stream bottoms (Zeiner et al. 1990).

Cover objects are an important component of foothill yellow-legged frog habitat. Individuals seek cover under submerged refugia such as rocks or sediments when disturbed or during periods of inactivity and/or hibernation, especially during cold weather (Zeiner et al. 1990).

Breeding habitat is typified by areas where gravel and/or rocks provide structure for egg cluster attachment near stream margins in moving water (Zeiner et al. 1990). Breeding occurs from April through late June in California and metamorphosis is attained 3-4 months after hatching (July-September).

Foothill yellow-legged frog is highly aquatic in comparison to other ranid frogs in California and is always found near permanent water, even during wet times of the year. Tadpoles require water for at least 3-4 months while metamorphosing.

Western Pond Turtle - The western pond turtle occurs in a variety of habitat types associated with permanent or nearly permanent water (Holland 1991) and is often concentrated in low flow regions of rivers and creeks, such as side channels and backwater areas. The species typically inhabits permanent water bodies and adjacent mud banks. However, female pond turtles often climb hillsides, sometimes moving 1,500 feet or more from the streamside to nest during the spring or early summer (Holland 1991, Zeiner et al. 1990).

Nesting occurs in upland habitats consisting of dry grassy areas with a predominantly south or southwest aspect and including appropriate soils, thermal conditions, and basking sites. Nests are constructed four inches below ground in moist areas in sandy to very hard soil types. Nests and burrows are usually found in undisturbed areas of duff or mud, but pond turtles have been found nesting under mine tailings. Eggs are laid from March to August, and take 73 to 80 days to incubate. Turtles leave the water in late September and spend the winter in burrows up to 500 feet away from the stream. Hatchlings are poor swimmers and require shallow edgewater areas with minimal current. Basking sites such as rocks and logs are an important component of western pond turtle habitat.

Overwintering habitat is variable and includes forested areas.

Northern Goshawk – Northern goshawk is a large forest raptor (largest of the 3 North American accipiters), occupying boreal and temperate forests throughout the Holarctic. In North America, it breeds from Alaska to Newfoundland and south. It is a partial migrant and winters throughout its breeding range. Some individuals undergo short movements to lower elevations during winter, apparently in search of food (Squires and Reynolds 1997).

Preferred breeding habitat is mature forest with high (60-90%) canopy closure and large trees on moderate slopes with open understories in either coniferous, deciduous, or mixed-pine forests,

depending on availability (Reynolds et al. 1982, Speiser and Bosakowski 1987, Squires and Ruggiero 1996). Nest trees are usually one of the largest trees in the nest area and most territories contain several (1-5) alternative nest trees. The nest is a bowl constructed of thin sticks lined with tree bark and greenery. Forest stands containing nests are often small (24-247 acres). In California, maximum distance between alternate nest stands was 1 mile and approximately 85% of alternate nest stands were <1,093 yards apart. Depending on the continuity of forest cover, nests of adjacent pairs occur at regular intervals (Squires and Reynolds 1997).

Breeding pairs typically return to their nesting territories by March or early April, eggs are laid late April-early May. The incubation period is 28-38 days and fledging occurs at 40-42 days (mid-June – mid-August, depending on nest initiation date) (Squires and Reynolds 1997).

Northern goshawk is an opportunistic predator, taking a wide variety of prey, depending on region, season, vulnerability and availability primarily including ground and tree squirrels, rabbits and hares, larger passerines, woodpeckers, game birds, and corvids. Occasionally, reptiles and insects are also taken.

Foraging individuals travel through the forest in a series of short flights, punctuated with brief periods of prey searching from elevated hunting perches (short duration sit-and-wait predatory movements). Occasionally, the species hunts by flying rapidly along forest edges, openings and through dense vegetation to surprise prey (Johnsgard 1990) and also attack in flight (Kenward 1982). The species may also stalk prey on foot, using vegetation and topography for concealment (Bergstrom 1985, Backstrom 1991).

Plucking perches are an essential component of suitable goshawk habitat and some perches near nests are used repeatedly for plucking prey. Plucking post structures may be downed logs, stumps, or old nests. Preferred perches are low, bent-over trees or saplings and are typically located in denser portions of the secondary canopy and are open, upslope from and fairly close to the nest, (Bull and Hohmann 1994, Reynolds and Meslow 1984).

Willow Flycatcher – The Willow flycatcher is a Neotropical migrant breeding in North America and wintering in Central and South America. Although historically common and widely distributed in California riparian habitat (Grinnell and Miller 1944), the species has been extirpated from most of its former California range (Harris et al. 1987). Currently it is absent from most of California with known breeding locations restricted primarily to the Sierra Nevada/Cascade region (southeastern Shasta County south to northern Kern County including Alpine, Inyo, and Mono Counties), near Buelton, Santa Barbara County; Prado Basin riparian forest, Riverside County; and several locations in San Diego County (Small 1994).

Suitable breeding habitat for the species is characterized by willow (*salix* spp.) and/or alder (*alnus* spp.) dominated riparia with permanent water, typically consisting of low gradient water courses, ponds, lakes, wet meadows, marshes, and seeps within and/or adjacent to forested areas. In California, willow flycatcher is “restricted to thickets of willows, whether along streams in broad valleys, in canyon bottoms, around mountain-side seepages, or at the margins of ponds and lakes” (Grinnell and Miller 1944).

Willow flycatcher is a late spring migrant and has a short, 70-90 day breeding season. Clutch sizes are usually 3-4 eggs, laid in late May-late June. The incubation period is 13-14 days and young fledge about 13-15 days after hatching, typically in mid-July. Both adults feed nestlings and fledglings, but it is nearly always the female that incubates the eggs and broods the young (Sedgwick 2000).

Willow flycatcher is primarily an aerial forager, capturing most of its insect diet on the wing, but it may hover-glean extensively from leaf surfaces or occasionally take insects from the ground (Sedgwick 2000).

The decline of willow flycatcher in California is due primarily to extensive loss, fragmentation and degradation of its riparian breeding habitat as a result of changes in hydrology and species composition in riparian plant communities from overgrazing, damming, dredging, channelization, urbanization, and de-watering (Sedgwick 2000).

Pacific Fisher – The fisher is a medium-sized, forest carnivore associated with late-seral and old-growth forest stands. In California, it has been extirpated from 50% of its former range as a result of trapping, habitat loss, and loss of prey species (i.e., porcupine). Fisher has become extinct in Oregon and Washington, causing the northern California population (West Coast DPS) to be reproductively isolated from conspecifics in the rest of North America. The species' current range in northern California includes Del Norte, Humboldt, Mendocino, Siskiyou, Shasta, and Trinity Counties (Center for Biological Diversity 2008).

Strongly associated with mature and late-successional forests, fisher inhabits stands exhibiting high canopy closure, large trees and snags, large woody debris, large hardwoods, and multiple canopy layers (Buskirk et al. 1994b). Denning and resting sites are important components of fisher habitat. Denning sites are utilized for giving birth and raising kits and resting sites are critical for resting between foraging bouts. Females give birth in natal dens and subsequently move their kits to one or several maternal dens over the breeding season (Nichol 2006). The breeding season is mid-April to late-May (Frost et al. 1997). Denning and resting sites are large physical structures such as live trees, snags, and logs. Determining the attributes of suitable foraging habitat for fisher is harder as a result of their large home ranges and mobility (average home range size in northern California were 14,349 acres for males and 3,701 acres (1,498 acres for females) but is thought to be similar to that of denning and resting habitat, often typified by characteristics associated with mature and late-successional forests (Dark 1997, Jones and Garton 1994, Zielinski 1999 in Center for Biological Diversity 2008, Zielinski et al 2004).

Pacific fisher has been shown to avoid areas with little forest cover or significant human disturbance, preferring large areas of contiguous interior forest (Dark 1997, Jones and Garton 1994, Powell 1993, Carroll et al. 1999, Weir and Harestad 2003). Seglund (1995) found that a majority of fisher rest sites (83%) were further than 328 feet from human disturbance and Dark (1997) documented that fishers used and rested in areas with less habitat fragmentation and less human activity. Rosenberg and Raphael (1986) found that presence of fishers was highly correlated with stand insularity and that they “decreased sharply in frequency of occurrence in stands <247 acres”.

Fisher is an opportunistic, generalist predator, capturing a variety of prey items including birds, porcupines, snowshoe hares, squirrels, mice and voles, shrews, insects, deer carrion and fruit (Bowman et al. 2006, Martin 1994, Powell 1993, Powell and Zielinski 1994, Weir et al. 2005, Zielinski et al. 1999). In northern California fisher has been found to have a slightly different diet than elsewhere across its range. Snowshoe hare and porcupine are less abundant and make up less of the fisher diet while reptiles were determined to be a much more important prey item than in other regions, particularly in the interior (Golightly et al. 2006).

Petitions to list fisher in the western United States under FESA have been submitted three times (Beckwill 1990, Carlton, 1994, Greenwald et al. 2000). The USFWS determined that there was

insufficient information to indicate that the Pacific fisher (*Martes pennanti pacifica*) is a valid, genetically distinct, subspecies. However the agency did recognize the West Coast Range as a “distinct population segment (USFWS 1991).

Fringed Myotis - The fringed myotis is widespread in California, occurring in all but the Central Valley and Colorado and Mojave deserts. Its abundance appears to be irregular; but it may be common locally. It occurs in a wide variety of habitats with recorded ranges in elevation from sea level to 9,350 feet in New Mexico (Barbour and Davis 1969). Optimal habitats are pinyon-juniper, valley foothill hardwood and hardwood-conifer, generally at 4,000 to 7,000 feet (Zeiner et al. 1988-1990).

Fringed myotis feeds mostly on beetles but also on moths, arachnids, and orthopterans (Black 1974). Foraging flight is slow and maneuverable, and capture of prey may utilize wing and tail membranes. This species is capable of hovering, and occasionally may land on the ground. It feeds over open habitats (including water) and by gleaning from foliage.

Fringed myotis is nocturnal and hibernates. It is active from shortly after sunset to 4-5 hours after sunset. Wind and precipitation reduce activity. The period of hibernation is October through March. Pregnant and lactating females may be heterothermic to conserve energy (Studier et al. 1973, Zeiner et al. 1988-1990). This species is also migratory, making relatively short, local movements to suitable hibernacula.

This species roosts in caves, mines, buildings, and crevices. Separate day and night roosts may be used, with adults and sub-adults generally forming separate groups in the roost. Maternity colonies of up to 200 individuals are located in caves, mines, buildings, or crevices. Adult males are absent from maternity colonies, which are occupied from late April through September. Maternity group members may remain together during hibernation. The fringed myotis is easily disturbed at roosting sites. (Zeiner et al. 1988-1990).

Mating occurs in the fall, followed by delayed fertilization. Gestation lasts 50-60 days. The young are born in late June. A single offspring is produced per year. Females are lactating from July through August (Zeiner et al. 1988-1990).

Townsend's Big-eared Bat - Townsend's big-eared bat is found throughout California but the details of its distribution are not well known. This species is found in all but subalpine and alpine habitats, and may be found at any season throughout its range. Once considered common, the species is now considered uncommon in California. It is most abundant in mesic habitats (Zeiner et al. 1988-1990).

Small moths constitute the principal food source of Townsend's big-eared bat. Beetles and a variety of soft-bodied insects also are taken. Prey is captured in flight using echolocation, or by gleaning from foliage. Flight is slow and maneuverable and the species is capable of hovering.

Townsend's big-eared bat is nocturnal and hibernates. Peak activity is late in the evening preceded by flights close to the roost. Hibernation occurs from October to April (Zeiner et al. 1988-1990).

Caves, mines, tunnels, buildings, or other human-made structures are required for roosting. This species may use separate sites for night, day, hibernation, or maternity roosts. Hibernation sites are cold, but not below freezing. Individuals may move within the hibernaculum to find suitable temperatures. Roosting sites are the most important limiting resource for this species (Zeiner et al. 1988-1990).

Small clusters or groups (usually fewer than 100 individuals) of females and young form the maternity colony. Maternity roosts are in relatively warm sites. Most mating occurs from November-February, but many females are inseminated before hibernation begins. Sperm is stored until ovulation occurs in the spring, with gestation lasting 56-100 days depending on temperature, size of the hibernating cluster, and time in hibernation. Births occur in May and June, peaking in late May. A single litter of 1 is produced annually. Young are weaned in 6 weeks and fly by 2.5-3 weeks after birth. Growth rates depend on temperature. The maternity group begins to break up in August. Females mate in their first autumn, males in their first or second autumn. About half of young females return to their birth site after their first hibernation. Subsequent return rates are 70-80%. The maximum recorded age is 16 years.

This species is extremely sensitive to disturbance of roosting sites. A single visit may result in abandonment of the roost. All known nursery colonies in limestone caves in California apparently have been abandoned. Numbers reportedly have declined steeply in California and they are especially sensitive to injury by wing banding (Humphrey and Kunz 1976, Zeiner et al. 1988-1990).

Pallid Bat - The pallid bat is a locally common species of low elevations in California. It occurs throughout the state except for the high Sierra Nevada from Shasta to Kern counties, and the northwestern corner of the state from Del Norte and western Siskiyou counties to northern Mendocino County. A wide variety of habitats are occupied, including grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. The species is most common in open, dry habitats with rocky areas for roosting and prefers rocky outcroppings, cliffs and crevices with access to open foraging habitat. It is a yearlong resident throughout most of its range (Zeiner et al. 1988-1990).

The pallid bat takes a wide variety of insects and arachnids; including beetles, orthopterans, homopterans, moths, spiders, scorpions, solpugids, and Jerusalem crickets. The stout skull and dentition of this species allows it to take large, hard-shelled prey. It forages over open ground, usually 1.6-8 feet above ground level. Foraging flight is slow and maneuverable with frequent dips, swoops, and short glides. Many prey are taken on the ground and the species can maneuver well there. Gleaning is frequently used, and a few prey are taken aerially. Rocky outcrops, cliffs and crevices are preferred for foraging (Zeiner et al. 1988-1990).

Pallid bat is nocturnal and hibernates. It emerges late (30-60 minutes after sunset). Briefer foraging bouts occur in autumn and activity is infrequent below 35° Fahrenheit. It undergoes shallow torpor daily. Hibernation occurs in winter near summer day roosts (Hemanson and O'Shea 1983).

Day roosts are in caves, crevices, mines, and occasionally in hollow trees and buildings. Roosts must protect bats from high temperatures and bats will move deeper into cover if temperatures rise. Night roosts may be in more open sites, such as porches and open buildings. Few hibernation sites are known, but rock crevices are likely used (Zeiner et al. 1988-1990).

Maternity colonies form in early April and may be comprised of a dozen to 100 individuals. Males may roost separately or in the nursery colony. Mating occurs from late October-February. Fertilization is delayed and gestation is 53-71 days. Young are born from April-July, mostly from May-June. The average litter size is 2, but females reproducing for the first time usually have 1 young. Litter size is 1-3. The altricial young are weaned in 7 weeks and are observed flying in July and August. Females nurse only their own young. Females and juveniles forage

together after weaning. Females mate in their first autumn and males in their second. Maximum recorded longevity is 9 years, 1 month (Cockrum 1973).

This species is very sensitive to disturbance of roosting sites. Roosting sites are essential for metabolic economy, juvenile growth and as night roosts to consume prey (Zeiner et al. 1988-1990).

Environmental Consequences

Alternative 1 – No Action Alternative

Direct and Indirect Effects

If the no action alternative is selected, there would be no soil or vegetation disturbance within the project area; the habitat for special status wildlife species would remain the same as the current condition.

Cumulative Effects

There are no direct or indirect effects as a result the No Action Alternative so there are no cumulative effects.

Alternative 2 – Proposed Action

Direct and Indirect Effects for all Sensitive Species

Prior to working at each site an individual will precede the equipment on foot to displace fish and wildlife and prevent them from being injured. Any fish or wildlife in the work area shall be flushed in a safe direction away from the project site. Additionally, the following Project Design Features (PDF) are part of the project plan and will be used to mitigate impacts to special status wildlife species:

WL-1 - To avoid disturbance to potentially breeding northern spotted owl, in or near the project area, project activities that involve louder than ambient noise levels will be prohibited from February 1st - July 9th each year. This is in conformance with CDFW's restriction for northern spotted owl, other raptors, and migratory birds. This seasonal restriction can be lifted if protocol-level surveys conducted during the year of the action do not detect the presence of nesting owls or identified nests have been determined to have failed or fledged young.

WL-2 – Prior to construction, access routes and worksites will be completely surveyed within species preferred habitats by a qualified biologist, to look for blue-gray tailed dropper, western pond turtle (individuals, nests, and overwintering burrows), salamander, foothill yellow-legged frogs (all life phases), and tailed frogs (all life phases). If such species are observed they will be moved from the exclusion zone downstream or upstream of the work site, to a safe location, prior to construction. This is in conformance with CDFW's recommendation for these species.

Within the short-term timeframe, the proposed action has the potential to disturb soil and vegetation from construction activities (equipment access, storage areas and placement of large woody debris), such areas may have minimal soil compaction and erosion, however the incremental area of ground disturbance for the project is minimal: site features will be placed within 0.30 acres of annual floodplain/riparian habitat, which is also disturbed annually by high flows. Temporary access routes will disturb approximately 0.35 acres within riparian areas and 0.70 acres in upland areas. These short-term impacts will be reduced by appropriate work windows, PDFs, BMPs, and post treatment restoration of temporary access routes.

Within the long-term, the proposed action has the potential to alter riparian and upland vegetation habitat. The potential long-term impacts to vegetation can be expected to last no more than 10 years, as it recovers from disturbance. Twenty small (<12in DBH) trees will potentially be removed for temporary access, consisting of 15 white alders in riparian areas, and three small oak trees and two small Douglas fir trees in upland areas. Project disturbance (construction and temporary access) will result in minimal loss of shade provided by canopy cover and disturbance to the habitats preferred by special status species.

However, the Proposed Action aims to restore the stream channels of Knownothing and Methodist Creeks to a more natural condition, which will also enhance riparian vegetation thereby increasing preferred habitat for aquatic and riparian associate species. Enhancing these streams will meet Forest Plan Aquatic Conservation Strategy Objectives by aiding the recovery of fish habitat, riparian habitat, and water quality (6-46).

Forest Sensitive Species Environmental Consequences

Direct and Indirect Effects

Blue-gray Tailedropper

Blue-gray tailedropper is known from the greater project vicinity. However, the project area itself is slightly higher in elevation than is thought to be suitable for the species which occurs at elevations of less than 820 feet (the Methodist Creek sites are at approximately 1,600 feet and Knownothing Creek sites are at approximately 1,400 feet in elevation). Therefore, while the species is not expected to occur in the project area, its preferred elevation range is near enough to the project site that potential disturbance to suitable habitat was analyzed.

Temporary access routes occurring in upland areas will disturb approximately 0.7 acres of preferred habitat. However, site clearance and PDFs (WL-2) implemented for potentially occurring blue-gray tailedropper will result in the avoidance of impacts to any potentially occurring individuals. In addition, there are no known occurrences of this species, and the likelihood of impacting this species is minimal because the timing for project implementation (late summer through early fall) will avoid disturbing individuals.

The proposed project may affect preferred habitat and individuals, but will not cause a trend toward federal listing for blue-gray tailedropper.

Tehama Chaparral Snail

Tehama chaparral snail is known to occur in a number of locations on the Forest. However, there are no known sites in the project area. Although suitable habitat for the species occurs within the larger project vicinity, there is no talus habitat within the Methodist or Knownothing Creeks project sites and the species is assumed absent for the purposes of this analysis.

The proposed action will have *no effect* on Tehama chaparral snail.

Foothill Yellow-legged Frog

No surveys have been conducted for foothill yellow-legged frog within the action area. However, suitable habitat for the species does occur at both the Methodist and Knownothing Creeks project sites.

Construction and temporary access routes occurring in upland areas will disturb approximately 0.65 acres of preferred habitat for this species. However, site clearance and PDFs (WL-2) will result in the avoidance of impacts to any potentially occurring individuals.

The proposed action *may affect preferred habitat and individuals, but will not cause a trend toward federal listing* for foothill yellow-legged frog.

Western Bumble Bee

Disturbance to streambank, riparian, and upland areas could potentially impact approximately 1.35 acres of western bumblebee preferred habitat. However, the short-term impacts of soil erosion and compaction will be reduced by appropriate work windows, PDFs, BMPs, and post treatment restoration of temporary access routes.

The proposed action *may affect preferred habitat and individuals, but will not cause a trend toward federal listing* for western bumble bee.

Western Pond Turtle

Western pond turtle is known to occur in the project vicinity and could occur in both the Methodist and Knownothing Creeks project sites. Therefore, ground-disturbing activities at the streamside and in adjacent upland areas where western pond turtle nests or overwintering habitat could occur may result in adverse impacts to individuals. Construction and temporary access routes occurring in upland areas will disturb approximately 0.65 acres of preferred habitat for this species. However, site clearance and PDFs (WL-2) will result in the avoidance of impacts to any potentially occurring individuals. If any western pond turtle nests or overwintering individuals are observed they will be moved from the exclusion zone downstream or upstream of the work site, to a safe location, prior to construction.

The proposed action *may affect preferred habitat and individuals, but will not cause a trend toward federal listing* for western pond turtle.

Northern Goshawk

Surveys for northern goshawk were not conducted within the action area.

No known northern goshawk nesting territories are known from the project vicinity and habitat at the site is not suitable for nesting. However, the project area could function as foraging and/or roosting habitat for the species. Site clearance and PDFs (WL-1) will result in the avoidance of effects to northern goshawk possibly occurring in the action area.

The proposed action will have *no effect* on northern goshawk.

Willow Flycatcher

Surveys for willow flycatcher were not conducted within the action area.

Riparian habitat associated with Methodist and Knownothing Creeks within the action area is marginally suitable for willow flycatcher. The Proposed Action will not occur in dense willow

thickets preferred by willow flycatcher. Further, site clearance and PDFs (WL-1) will result in the avoidance of direct effects associated with mortality and noise/human disturbance of potentially breeding willow flycatchers.

The proposed action will have *no effect* on willow flycatcher.

Pacific Fisher

Fisher habitat is limited and low quality within the project area thus not likely used for reproduction or foraging, but the species may traverse the project area along the riparian corridor. There are no records of fisher from within or adjacent to the project area. However, this species is nocturnal, has a large home range and is known to avoid areas where human disturbance is a factor. All proposed construction activities within the project area will occur during daylight hours, will take place in only very small portions of fisher habitat and will be conspicuous enough as to likely be avoided by the species. Further, the project will not modify suitable fisher habitat.

The proposed action will have *no effect* on Pacific fisher.

Pallid Bat, Townsend's Big-eared Bat and Fringed Myotis

Many bat species, especially including those analyzed here, are susceptible to noise disturbance during young rearing and roosting periods both seasonally and daily. It is highly unlikely that noise disturbance from heavy equipment utilized within the proposed project areas will generate enough noise to disturb or affect these sensitive bat species. Noise levels will remain below critical thresholds due to distance from potential roosting areas and duration of use in any one treatment area at a time. Also, no snags or other structures that could provide potential roost sites for these species will be removed.

The proposed action will have *no effect* on pallid bat, Townsend's big-eared bat or fringed myotis.

Summary of Effects

A review of the South Fork Tributary Habitat Enhancement Project has resulted in the determinations that the actions in Alternative 2, the Proposed Action, will have *no effect* on any special status species, either because the project is outside of their known range, suitable habitat is lacking or the proposed project will not result in adverse impacts to the species or their suitable habitat except for blue-gray tailed darter, western bumble bee, foothill yellow-legged frog and western pond turtle for which a *may affect preferred habitat and individuals, but will not cause a trend toward federal listing* determination was made. However, these potential impacts are short-term and related to disturbance during project implementation. In the long-term, the Proposed Action, will restore the stream channels of Knownothing and Methodist Creeks to a more natural condition, which will also enhance riparian vegetation thereby increasing preferred habitat for aquatic and riparian associate species. Enhancing these streams will meet Forest Plan Aquatic Conservation Strategy Objectives by aiding the recovery of fish habitat, riparian habitat, and water quality (6-46).

Cumulative Effects

Mining within the both watersheds is minimal and limited to small surface disturbances. Within the Knownothing Watershed, the Discovery Day hard rock mine could implement a Plan of

Operations, however, the Plan would include management to avoid altering habitat for wildlife species of concern and therefore would not cumulatively impact Knownothing Creek. No other projects are proposing ground disturbing activities in the foreseeable future within this analysis area of either watershed. Therefore, the addition of this project to the ongoing activities within the watersheds (mining, fuels reduction, and stream restoration) will not combine to result in adverse cumulative effects. Therefore, restoration activities will not produce adverse cumulative effects to sensitive wildlife species due to the small size for the project and specified PDFs and BMPs which will mitigate potential impacts of the project.

Compliance with law, regulation, policy, and the Forest Plan

The South Fork Tributary Habitat Enhancement Project complies with Forest Service Policy (FSM 2670), and Klamath National Forest LRMP Standards and Guidelines for Sensitive wildlife species.

Management Indicator Species Environmental Consequences

Table 1. Management Indicator Species (below) serves to track species listed as Management Indicator Species (MIS) in the Pacific Northwest Forest Plan on the KNF, Salmon Ranger District. With sufficient documentation, this form may serve as a Biological Assessment and/or Biological Evaluation for actions that have no effect on the species considered therein and their habitat. The following analysis was performed by Sam Cuenca, Salmon-Scott River Ranger District Wildlife Biologist, on February 9, 2017. Species analyzed in South Fork Tributary Habitat Enhancement Project MIS will not be affected. No MIS Part II analysis is needed.

Common Name	Scientific Name	Habitat* is not in or adjacent to the project area and is not affected by the project	Habitat* is in or adjacent to the project area, but is not directly or indirectly affected by the project (needs rationale)	Habitat* is potentially affected by the project (proceed to Part II)	Habitat removed by project activities (based on analysis in Part II)
Hardwood Species Association					
Acorn woodpecker	<i>Melanerpes formicivorus</i>		1099 acres of oak in 7th field watersheds	0 acres potentially affected by project	0 acres potentially affected by project
Western gray squirrel	<i>Sciurus griseus</i>		1099 acres of oak in 7th field watersheds	0 acres potentially affected by project	0 acres potentially affected by project
River/Stream Species Association					
Rainbow trout	<i>Oncorhynchus mykiss</i>		2 miles of perennial stream and 0.5 miles of intermittent stream in 7th field watersheds.	0 miles perennial stream and 0 miles of intermittent stream potentially affect by project components.	0 acres potentially affected by project
Steelhead	<i>Oncorhynchus mykiss</i>		2 miles of perennial stream and 0.5 miles of intermittent stream in 7th field watersheds.	0 miles perennial stream and 0 miles of intermittent stream potentially affect by project components.	0 acres potentially affected by project
Tailed frog	<i>Ascaphus truei</i>		2 miles of perennial stream and 0.5 miles of intermittent stream in 7th field watersheds.	0 miles perennial stream and 0 miles of intermittent stream potentially affect by project components.	0 acres potentially affected by project

Common Name	Scientific Name	Habitat* is not in or adjacent to the project area	Habitat* is in or adjacent to the project area, but is not	Habitat* is potentially affected		Habitat removed by project activities
Cascades frog	<i>Rana cascade</i>		2 miles of perennial stream and 0.5 miles of intermittent stream in 7th field watersheds.	0 miles perennial stream and 0 miles of intermittent stream potentially affect by project components.		0 acres potentially affected by project
American dipper	<i>Cynclus platensis</i>		2 miles of perennial stream and 0.5 miles of intermittent stream in 7th field watersheds.	0 miles perennial stream and 0 miles of intermittent stream potentially affect by project components.		0 acres potentially affected by project
Northern water shrew	<i>Sorex palustris</i>		2 miles of perennial stream and 0.5 miles of intermittent stream in 7th field watersheds.	0 miles perennial stream and 0 miles of intermittent stream potentially affect by project components.		0 acres potentially affected by project
Long-tailed vole	<i>Microtus longicaudus</i>		2 miles of perennial stream and 0.5 miles of intermittent stream in 7th field watersheds.	0 miles perennial stream and 0 miles of intermittent stream potentially affect by project components.		0 acres potentially affected by project
Marsh/Lake/Pond Species Association						
Northern red-legged frog	<i>Rana aurora aurora</i>	Outside known range (not included in FWS T&E species list for Klamath NF)	N/A	N/A		0 acres potentially affected by project
Western pond turtle	<i>Clemmys marmorata</i>		2 miles of low gradient stream and 7th field watersheds.	0 acres potentially affected by project		0 acres potentially affected by project
Snag Species Association						
Red-breasted sapsucker	<i>Sphyrapicus ruber</i>		6774.5 acres in analysis area	0 acres potentially affected by project		0 acres potentially affected by project
Hairy woodpecker	<i>Picoides villosus</i>		3844.9 acres in analysis area	0 acres potentially affected by project		0 acres potentially affected by project
White-headed woodpecker	<i>Picoides albolarvatus</i>		3844.9 acres in analysis area	0 acres potentially affected by project		0 acres potentially affected by project

Common Name	Scientific Name	Habitat* is not in or adjacent to the project area	Habitat* is in or adjacent to the project area, but is not	Habitat* is potentially affected		Habitat removed by project activities
Vaux's swift	<i>Chaetura vuaxi</i>		3844.9 acres in analysis area	0 acres potentially affected by project		0 acres potentially affected by project
Downy woodpecker	<i>Picoides pubescens</i>		3844.9 acres in analysis area	0 acres potentially affected by project		0 acres potentially affected by project
Pileated woodpecker	<i>Dryocopus Pileatus</i>		3844.9 acres in analysis area	0 acres potentially affected by project		0 acres potentially affected by project
Black-backed woodpecker	<i>Picoides arcticus</i>		0 acres in analysis area	0 acres potentially affected by project		0 acres potentially affected by project

*"Habitat" as defined in the Klamath LRMP, and supplemented by the California Wildlife Habitat Relationships System (CDFW).

Literature Cited

- Backstrom, P. 1991. Northern goshawk predation on sharp-tailed grouse. *Loon* 63:74.
- Bergstrom, B. J. 1985. Unusual prey-stalking behavior by a goshawk. *Journal of Field Ornithology* 56:415.
- Black, H. L. 1974. A north temperate bat community: structure and prey populations. *Journal of Mammalogy* 55:138-157.
- Bowman, J. D. Donova and R. C. Rosatte. 2006. Numerical response of fishers to synchronous prey dynamics. *Journal of Mammalogy* 87(3):480-484.
- Buehler, D. A. 2000. Bald eagle (*Haliaeetus leucocephalus*), *The Birds of North America* (P. G. Rodewald, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America: .
- Bull, E. L. and J. H. Hohmann. 1994. Breeding biology of northern goshawks in northeastern Oregon. *Study of Avian Biology* 16:103-105.
- Brown, L and D. Amadon. 1968. Eagles, hawks, and dalcons of the world. McGraw-Hill Book Co., New York, New York.
- Burke, T. E., J. S. Applegarth and T. R. Weasma. 1999. Management recommendations of survey and manage terrestrial mollusks. Ver. 2.0. Report submitted to USDI Bureau of Land Management, Salem, Oregon.
- Buskirk, S. G. and R. A. Powell. 1994a. Habitat ecology of fishers and American martens. In: Buskirk, S.W., Harestad, A.S.; Raphael, M.G., comps, eds. *Martens, sables, and fishers: biology and conservation*. Ithaca, N.Y.: Cornell University Press: 283-296.
- Bushkiris, S. G., Mullis, A. S. Mossman, I. Show and C. Coolahan. 1994b. Habitat ecology of American martens and fishers. In S. W. Buskirk, A. S. Harestad, M. G. Raphael, and R. A. Powell (Eds.), *Martens, sables and fishers: biology and conservation* (pp. 368-376). Ithaca, NY: Cornell University Press.
- Center for Biological Diversity. 2008. A petition to list the pacific fisher (*Martes pennanti*) as an Endangered or Threatened Species under the California Endangered Species Act. 83pp.
- Briggs, J. L., and R. M. Storm. 1970. Growth and population structure of the Cascades frog, *Rana cascadae* Slater. *Herpetologica* 26:283-300.
- Carroll, C., W. J. Zielinski and R. F. Noss. 1999. Using presence-absence data to build and spatial habitat models for the fisher in the Klamath Region, U.S.A. *Conservation Biology*, 13(6), 1344-1359.
- California Department of Fish and Game. 1990. California's Wildlife, Volume III, Mammals. California Department of Fish and Game, Sacramento, California. 407 pp.
- California Natural Diversity Database (CNDDB). 2012. Rarefind, 4, updated June 2 2012. Sacramento, California, USA. 305 pp.
- Cockrum, E. L. 1973. Additional longevity records for American bats. *Journal of the Arizona Academy of Science* 8:108-110.

- Dark, S. J. 1997. A landscape-scale analysis of mammalian carnivore distribution and habitat use by fisher. Unpublished Masters Thesis, Humboldt State University, Arcata, CA.
- Dixon, J. B. and R. E. Dixon. 1938. Nesting of the western goshawk in California Condor 40:3-11.
- Ferguson-Lees, J. and D. A. Christie. 2001. Raptors of the world. Houghton Mifflin, New York, New York, USA.
- Evans, E., Thorp, R., Jepsen, S., and S. Hoffman Black. 2008. Status review of three formerly common species of bumble bee in the subgenus *Bombus*: *Bombus affinis* (the rusty patched bumble bee), *B. terricola* (the yellow-banded bumble bee), and *B. occidentalis* (the western bumble bee).
- Frest, J. T. and E. J. Johannes. 2000. A baseline survey of southwestern Oregon, with emphasis on the Rogue and Umpqua River drainages. Year 2000 Report prepared for Oregon Natural Heritage Program, Portland, Oregon. 403 pp.
- Frost, H. C., W. B. Krohn and C. R. Wallace. 1997. Age-specific reproductive characteristics in fishers Journal of Mammalogy 78(2):598-612.
- Golightly, R. T., T. F. Penland, W. J. Zielinski and J. M. Higley. 2006. Fisher diet in the Klamath/North Coast Bioregion. Final Report to the U. S. Fish and Wildlife Service and Scotia Pacific . Humboldt State Sponsored Programs Foundation, Arcata, CA.
- Grinnell, J., J. S. Dixon and J. M. Linsdale. 1937. Fur-bearing mammals of California. 2 Vols. University of California Press, Berkeley, California. 777pp.
- Grinnel, J. and A. H. Miller. 1944. The distribution of the birds of California. Pacific Coast Avifauna 27. Cooper Ornithological Club, Berkeley, California.
- Harris, J. H., S. D. Sanders and M. A. Flett. 1987. Willow flycatcher surveys in the Sierra Nevada. Western Birds 18:27-36.
- Hatfield, R., S. Jepson, R. Thorp, L. Richardson, S. Colla and S. Foltz Jordan. 2015 *Bombus occidentalis*. The ICUN Red List of Threatened Species 2015: e.T44937492A46440201. Downloaded on 16 February, 2017.
- Hobbs, G. A. 1968. Ecology of species of *Bombus* Latr. (Hymenoptera: Apidae) in southern Alberta. VI. Subgenus *Bombus*. Canadian Entomologist 100:156-164.
- Holland, D. C. 1991. A synopsis of the ecology and status of the western pond turtle (*Clemmys marmorata*) in 1991. Unpublished report prepared for the U.S. Fish and Wildlife Service. 141 pp.
- Hornocker, M. G. and H. S. Hash. 1981. Ecology of the wolverine (*Gulo gulo*) in northwestern Montana, USA. Canadian Journal of Zoology 59:1286-1301.
- Humphrey, S. R., and T. H. Kunz. 1976. Ecology of a Pleistocene relict, the western big-eared bat (*Plecotus townsendii*), in the southern Great Plains. Journal of Mammalogy 57:470-494.
- Ingles, L. G. 1965. Mammals of the Pacific states. Stanford University Press, Stanford, California. 506 pp.
- Johnsgard, P. A. 1990. Hawks, eagles and falcons of North America: biology and natural history. Washington, D.C.: Smithsonian. Inst. Press.

- Jones, J. L. and E. O. Garton. 1994. Selection of successional stages by fishers in north-central Idaho. In S. W. Buskirk, A. S. Harestad, M. G. Raphael, and R. A. Powell (Eds.), *Martens sables and fishers: biology and conservation* (pp. 377-388). Ithaca, NY: Cornell University Press.
- Jurek, R. M. 1988. Five-year status report. Bald Eagle. California Dept. Fish and Game. Sacramento, CA, USA.
- Kelley, R, S. Dowlan, N. Duncan and T. Burks. 1999. Field guide to Survey and Manage terrestrial mollusk species from the Northwest Forest Plan. Bureau of Land Management, Oregon State Office, Portland, Oregon. 114 pp.
- Kenward, R. E. 1982. Goshawk hunting behaviour and range size as a function of food and habitat availability. *Journal of Animal Ecology* 51:69-80.
- Koch, J. B. J. P. Strange, and P. Williams. 2012. Bumble bees of the western United States. Pollinator Partnership, San Francisco, California. 144 pp.
- Kostrzewa, A. 1991. Interspecific interference competition in three European raptor species. *Ethology, Ecology and Evolution* 3:127-143.
- Krott, P. 1982. The glutton (*Gulo gulo*) in the ecosystem. *Säugetierkd Mitt* 30:136-150.
- Lehman, R. N. 1979. A survey of selected habitat features of 95 Bald Eagle nests in California. California Department of Fish and Game. Wildlife Management Branch Admin. Rep. 79-1, Sacramento, CA, USA.
- Macfarlane R. P., K. D. Patten, L. A. Royce, B. K. W. Wyatt and D. F. Mayer. 1994. Management potential of sixteen North American bumble bee species. *Melandria* 50:1-12.
- Martin, S. K. 1994. Feeding ecology of American martens and fishers. In S. W. Buskirk, A. S. Harestad, M. G. Raphael, and R. A. Powell (Eds.), *Martens, sables and fishers: biology and conservation* (pp. 297-315). Ithaca, NY: Cornell University Press.
- Nichol, N. M. 2006. Draft status assessment of the Pacific fisher (*Martes pennanti*) in California. California Department of Fish and Game.
- Plath, O. E. 1922. Notes on the nesting habits of several North American bumblebees. *Psyche* 29:189-202.
- Powell, R. A. 1993. The fisher life history, ecology and behavior. (Second ed.). Minneapolis. University of Minnesota Press.
- Rausch, R. A. and A. M. Pearson. 1972. Notes on the wolverine in Alaska and the Yukon Territory. *Journal of Wildlife Management* 36:249-268.
- Reynolds, R. T., E. C. Meslow and H. M. Wight. 1982. Nesting habitat of coexisting *Accipiter* in Oregon. *Journal of Wildlife Management* 46:124-138.
- Rosenberg, K. V. and R. G. Raphael. 1986. Effects of forest fragmentation on vertebrates in Douglas-fir forest. In *Wildlife 2000: modeling habitat relationships of terrestrial vertebrates* (J. Verner, M. L. Morrison and C. J. Ralph (Eds.). University of Wisconsin Press, Madison. Pp. 263-272.

- Ruggiero, L. F., K. B. Aubry, S. W. Buskirk, L. J. Lyon and W.J. Zielinski. 1994. The scientific basis for conserving forest carnivores: American marten, fisher, lynx, and wolverine in the United States. USDA-FS, General Technical Report RM-254. 183 pp.
- Sedgwick, J. A. 2000. Willow flycatcher (*Empidonax traillii*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bns/species/533doi:10.2173/bna.533>.
- Seglund, A. E. 1995. The use of resting sites by the Pacific fisher. M.S. thesis, Humboldt State University, Arcata, California.
- Small, A. 1994. California birds: their status and distribution. Ibis Publishing Co., Vista, California.
- Speiser, R. T. and T. Bosakowski. 1984. History, status and future management of goshawk nesting in New Jersey. Records of New Jersey Birds 10:29-33.
- Squires, J. R. and R. T. Reynolds. 1997. Northern Goshawk (*Accipiter gentilis*), The Birds of North America (P.G. Rodewald, Ed.). Ithaca: Cornell Lab of Ornithology, Retrieved from the Birds of North America: .
- Stebbins, R. C. 1954. Amphibians and reptiles of western North America. McGraw-Hill, New York. 536pp.
- Thorp, R. W. 2008. Franklin's Bumble Bee, *Bombus (Bombus) franklini* (Frison) (Hymenoptera: Apidae). Report on 2006-2007 Seasons.
- USDA Forest Service. 1977. Bald eagle habitat management guidelines. Forest Service, Region 5, 630 Sansome Street, San Francisco, Ca. 94111. 60pp.
- USDA Forest Service and USDI Bureau of Land Management. 2001 Record of Decision and standards and guidelines for amendments to the survey and manage, protection buffer, and other mitigation measures standards and guidelines in Forest Service and Bureau of Land Management planning documents within the range of the northern spotted owl. 86 pp.
- USDI Fish and Wildlife Service. 1991. Notice of 90-day finding on petition to list the Pacific fisher as Endangered. Proposed Rule. Federal Register 56(8):1159-1161.
- USDI Fish and Wildlife Service. 2011. 90-Day finding on a petition to list 29 mollusk species as Threatened or Endangered with Critical Habitat. Proposed Rule. Federal Register 76(193):61825-61853.
- Weir, R. D. and A. S. Harestad. 2003. Scale-dependent habitat selectivity by fishers in south-central British Columbia. Journal of Wildlife Management 67(1):73-82.
- Wiens, J. A. 1972. Anuran habitat selection: early experience and substrate selection in *Rana cascadae* tadpoles. Animal Behavior 20:218-220.
- Williams, P. 2014. *Bombus*, bumblebees of the world. Web pages based on Williams, P.H. 1998. An annotated checklist of bumblebees with an analysis of patterns of description (Hymenoptera: Apidae, Bombini). Bulletin of the Natural History Museum (Entomology) 67: 79-152. Available at: <http://www.nhm.ac.uk/research-curation/research/projects/bombus/index.html>

- Wright, P. L. and R. A. Rausch. 1955. Reproduction in the wolverine. *Journal of Mammalogy* 36:346-355.
- Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White (Eds.). 1988-1990. California's Wildlife. Vol. I-III. California Department of Fish and Game, Sacramento, California.
- Zielinski, W. J. 1999. Microhabitat selection by fishers. Presentation at the Wildlife Society meeting, Austin, TX.
- Zielinski, W. J., R. L. Truex, G. A. Schmidt, F. V. Schlexer, K. N. Schmidt, and R. H. Barrett. 2004. Resting habitat selection by fishers in California. *Journal of Wildlife Management* 68(3):475-492.
- Zirrer, F. 1947. The goshawk. *Passenger Pigeon* 9:79-94.

Appendix A - Forest Sensitive Species Removed from Further Analysis

South Fork Tributary Habitat Enhancement Project

Forest Sensitive Species Removed from Further Analysis

February 20, 2017

Jessica Stauffer

Analysis of wildlife species listed as Forest Sensitive Species (FSS) for the South Fork Tributary Habitat Enhancement Project that were not within range or preferred habitat does not occur within or adjacent to the project area:

Scott Bar Salamander (*Plethodon asupack*): This species is known to occur near the Klamath and Scott Rivers in northwestern Siskiyou County, California and is associated with rocky forested areas, especially thick, moss-covered talus.¹ Such habitat does not occur within the project area and it is outside of the species' known range. Therefore, Scott Bar salamander is unlikely to occur within the project area and will not be analyzed further.

Siskiyou Mountains Salamander (*Plethodon stormi*): This species is rare in Jackson County, Oregon and adjacent Siskiyou County, California. It is most often found in mixed conifer habitat of dense trees of pole- to mature- size.¹ It is found primarily in loose rock rubble at the base of talus slopes, known from mostly north-facing slopes or heavily shaded areas.² Such habitat does not occur within the project area and it is outside of the species' known range. Therefore, Siskiyou Mountain salamander is unlikely to occur within the project area and will not be analyzed further.

Southern Torrent Salamander (*Rhyacotriton variegatus*): This species occurs in coastal forests of northwestern California south to Point Arena in Mendocino County.³ It inhabits cold, well-shaded permanent streams and seepages in shady coastal forests. On land, it normally occurs only within the splash zone or on moss-covered rock rubble with trickling water.¹ The proposed project is outside of the range of this species and it will not be analyzed further.

Northern Red-legged Frog (*Rana aurora*): Preferred habitat for this species is quiet pools of streams, marshes, and occasionally ponds. It occurs along the Coast Ranges from Del Norte County to Mendocino County, California, usually below 3,936 feet.¹ The proposed project is outside of the range of this species and it will not be analyzed further.

Cascades Frog (*Rana cascadae*): Preferred habitat for this species is described as "vernal pools and similar habitat, occasionally on reservoir edges or stream floodplains, on clay soils with seasonal. Such habitat does not occur within the project area. Therefore, this species is unlikely to occur within the project area and will not be analyzed further.

Bald Eagle (*Haliaeetus leucocephalus*): This species is a permanent resident and uncommon winter migrant, now restricted to breeding mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou and Trinity Counties and is known to occur within the Salmon River watershed. Preferred nesting habitat for this species is large, old-growth or dominant live trees with open branches and it requires large bodies of water or free flowing rivers with abundant fish and adjacent snags or other perches.¹ Suitable habitat does not occur in the project area and the species was eliminated from further analysis.

Swainson's Hawk (*Buteo swainsoni*): This species is an uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County and Mojave Desert. It breeds in forest stands with few trees in juniper-sage flats, riparian areas, and in oak savannah and forages in adjacent grasslands or suitable fields or livestock pastures. It roosts in large trees but will also roost on the ground if none are available.¹ The project area is outside of the species' known range and it will not be considered further.

Greater Sandhill Crane (*Antigone canadensis tabida*): This species is known to occur in California. Its breeding range has been reduced to Siskiyou, Modoc, and Lassen Counties and in Sierra Valley, Plumas and Sierra Counties.^{4,5,6} In summer, it occurs in and near wet meadow, shallow lacustrine and fresh emergent wetland habitats. It winters Primarily in the Sacramento and San Joaquin Valleys where it inhabits annual and perennial grassland, moist croplands and open, emergent wetlands.^{1,7} Such habitat does not occur within the project area and it is outside of the species' known range. Therefore, greater sandhill crane is unlikely to occur within the project area and will not be analyzed further.

Western Yellow-billed Cuckoo (*Coccyzus americanus*): This species is an uncommon to rare summer resident of valley foothill and desert riparian habitat in scattered locations in California. Breeding populations are known along the Colorado River, Sacramento and Owens Valleys, along the south fork of the Kern River, along the Santa Ana River, the Amargosa River and San Luis Rey River in California. It nests in dense cover of deciduous trees and shrubs, especially willows in river bottoms and other mesic habitat where humidity is high.¹ The project area is well outside of the species' known range so it is not expected to occur and will not be analyzed further.

Sierra Nevada Red Fox (*Vulpes vulpes necator*): This species is rare in the Sierra Nevada Mountains but widely distributed in central and southern California. It is found in the Cascade Mountains in Siskiyou County and from Lassen County south to Tulare County. It occurs in a variety of habitats, including alpine dwarf-shrub, wet meadow, subalpine conifer, lodgepole pine, red fir, aspen, montane chaparral, montane riparian, mixed conifer and ponderosa pine. It can also occur in Jeffery pine, eastside pine and montane hardwood-conifer forest¹. The project area is outside of the species known range so it is not expected to occur and therefore will not be analyzed further.

American Marten (*Martes americana*): This species is an uncommon to common permanent resident of North Coast regions and the Sierra Nevada, Klamath and Cascade Mountains. Suitable habitat for the species includes various mixed evergreen forests with greater than 40% crown closure with large trees and snags. Important habitats include red fir, lodgepole pine, subalpine conifer, mixed conifer, Jefferey pine and eastside pine. Suitable habitat is not present at the project site, therefore the species is not analyzed further.

References

1. Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer and M. White (Eds.). 1988-1990. California's Wildlife. Vol.I-III. California Department of Fish and Game, Sacramento, California.
2. Brodie, E. D., Jr. 1971. *Plethodon stormi*. Catalog of American amphibians and reptiles. 1:3.1-103.2.

3. Jennings, M. R and M. P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game. Rancho Cordova, California. 255 pp.
4. James, A. H. 1977. Sandhill cranes breeding in Sierra Valley, California. *Western Birds* 8:159-160.
5. Remsen, J. V., Jr. 1978. Bird species of special concern in California. California Department of Fish and Game, Sacramento, California. Wildlife Management Administrative Report 78-1. 54pp.
6. McCaskie, G., De Benedictis, P., Erickson, R. and J. Morlan. 1979. Birds of northern California, an annotated field list. 2nd Edition. Golden Gate Audubon Society, Berkeley, California. 84pp.
7. Grinnell, J. and A. H. Miller. 1944. The distribution of the birds of California. *Pacific Coast Avifauna* 27. 608 pp.